

REMARKS

The Office Action of June 10, 2009 has been reviewed and the comments therein carefully considered. The application has been amended to cancel claims 35 and 36. Accordingly, claims 31-34, 37-39 and 41-42 are currently pending. For the following reasons, Applicant respectfully submits that the pending claims are patentable over the cited art of record and are in condition for allowance.

Claim Objections

Claims 35 and 36 were objected to in the Office Action. These claims have been cancelled by amendment. Accordingly, this objection is moot and should be withdrawn.

Rejection Under 35 U.S.C. §102(b)

Claims 31-39, 41 and 42 stand rejected under 35 U.S.C. §102(b) for anticipation by the Carotenuto et al. 2002 article in the Journal of Materials Science Letters (hereinafter "Carotenuto"). This rejection is respectfully traversed.

Carotenuto discusses a study of the low-temperature magnetic properties of micro-sized polymer-metal composites. More particularly, Carotenuto focuses on the electrical and magnetic properties of a conductive silver/polyethylene (Ag/HD-PE) composite in which 2-3 μm silver powder was mixed with molten polyethylene to create composites having, for example, about 55 wt% or 60 wt% silver. (See Carotenuto, page 425, bottom of left column and page 426, middle of left column). Carotenuto mentions that certain paramagnetic properties were observed when "the nano-sized powder [is] finely dispersed into a non-magnetic matrix." (See Carotenuto, page 426, bottom of left column). Carotenuto does not appear to discuss silver particles other than as part of a polymer matrix. While Carotenuto does mention a susceptibility vs. temperature study for two Ag/HD-PE samples, it does not mention the measure of the external magnetic field. Further absent from Carotenuto is any indication as to the coercive force of the silver particles discussed therein.

The present invention is directed to a paramagnetic silver powder having paramagnetism at an absolute temperature of 20K or higher, a positive mass magnetization in an external magnetic field of 4,000 Oe or greater, and a coercive force of 5 Gauss or less. As explained in Applicant's responses to the previous Office Action, the silver powder described and claimed is considerably different from conventional silver powders, perhaps most notably because conventional silver powders are diamagnetic. Diamagnetic metals have a very weak and negative susceptibility to magnetic fields and do not retain their magnetic properties once

the external field is removed. To the contrary, paramagnetic metals are slightly attracted by a magnetic field and have a small and positive susceptibility to magnetic fields.

The Office Action contends that Carotenuto discloses silver particles having all of the properties of the silver particles recited in the claims. However, Applicant respectfully disagrees. Initially, it is noted that the discussion of Carotenuto is entirely focused on the properties of a silver metal-polymer composite rather than the properties of the silver particles themselves. In fact, the two composites tested only have between 55 wt% and 60 wt% silver. When the particles are not in a polymer matrix, and are instead left exposed to the atmosphere, it appears that the particles would agglomerate and oxidize. The paramagnetic properties are also observed for the material (i.e., the composite) rather than for the silver powder. For instance, Carotenuto mentions that when silver powder is reduced into a nano-sized powder and finely dispersed into a non-magnetic matrix, the resulting material shows paramagnetic properties. Thus, it is unclear whether Carotenuto even suggests a paramagnetic silver powder.

Moreover, reliance in the Office Action on the inherent properties of the material described in Carotenuto is also misplaced. While Applicant understands that discovering or recognizing a previously unappreciated or unnoted property of a prior art composition does not impart patentability, the Patent Office is under the initial burden to explain why that property would be inherently present in the prior art composition. In satisfying this burden, certain assumptions can be made, such as that identical compositions will behave the same or identical methods of manufacture will produce the same compositions. This burden cannot, however, be satisfied by speculation or conjecture since “[i]nherency...may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999); M.P.E.P. §2112.

Here, there is no factual basis to assume that the paramagnetic silver powders as recited in the claims are anticipated by Carotenuto. The Office Action appears to assume that the properties of the claimed silver powder are inherently present in the composition of Carotenuto because the compositions are the same. (See June 10, 2009 Office Action, page 4). However, there is no support for this. As mentioned above, Carotenuto appears to primarily discuss the properties of an Ag/HD-PE composite rather than silver powder itself. It appears from Carotenuto that conventional silver powder (purchased from Aldrich

Chemical) is used in producing the composite. (See Carotenuto, page 425, bottom of left column). However, Applicant has previously established that conventional silver powder does not share the same magnetic properties of the claimed silver powder. Thus, absent some subsequent processing of the powder in Carotenuto, it cannot be assumed that the silver powder described therein would have the claimed properties.

Moreover, the method by which the claimed powders are produced is different from the processing in Carotenuto. While the claims are not limited to a particular method of manufacture, this distinction provides further evidence that reliance on an inherency argument is improper. The general method by which the claimed paramagnetic silver powders are produced is described on pages 11-12 of the specification, as filed, with a more detailed description and working examples provided on pages 18-21. In general, the process of producing the claimed powder includes generating argon plasma, producing silver metal plasma by reacting the argon plasma with silver powder, and rapidly cooling the silver metal plasma gas below room temperature under vacuum. (See specification, pages 11-12). On the other hand, in Carotenuto, the polyethylene-silver micro composite was prepared by mixing silver powder with molten polyethylene using a stainless steel spatula and a low power hot-plate surface. (See Carotenuto, page 425, bottom of left column). Suggestions of paramagnetic phenomena appear to be a function of the dispersion of the powder in the polymer matrix. Further, even assuming the silver powder of Carotenuto has paramagnetic properties, there is still insufficient basis to assume the claimed positive mass magnetization or coercive force properties are present. Applicant notes that the susceptibility vs. temperature study for the two Ag/HD-PE samples does not disclose whether or not an external magnetic field of 4,000 Oe was applied.

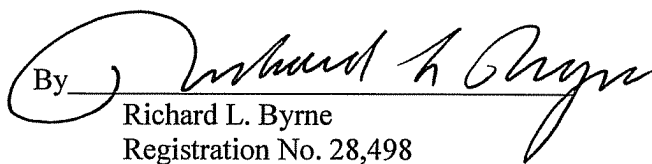
Thus, because Carotenuto fails to teach, disclose or suggest the silver powder defined in claim 31, or the claims which depend therefrom, Applicant respectfully requests that the outstanding rejection of claims 31-39, 41 and 42 under 35 U.S.C. §102(b) be reconsidered and withdrawn.

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CONCLUSION

For all the foregoing reasons, Applicant respectfully submits that the pending claims are patentable over the cited art of record and are in condition for allowance. Accordingly, reconsideration of the outstanding rejections and allowance of pending claims 31-34, 37-39 and 41-42 is respectfully requested.

Respectfully submitted,
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